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AUTHOR Whinfield, R. W.
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ABSTRACT

A study was conducted to evaluate the admission criteria being used by the Connecticut Regional Vocational Technical Schools for the years 1977-1979, in an attempt to determine whether or not admission criteria and success in school could be used to predict second- and third-year grades. In addition, a pilot study was developed to follow up graduates and dropouts after they leave school. The study methodology was to draw a sample of students from all schools, representing race and sex distributions of the total population. Using student application forms and school records, data on each of the students in the sample was collected, coded, entered into a computer, and verified. Findings included that (1) there is no relationship between the admission criteria and any of the variables related to family, sending school non-academic information, or personal characteristics; (2) students' characteristics by race, family, and sex have remained the same over the three years and is not different from the applicants; (3) the prediction of academic grade point average can be done at an acceptable level using the admission criteria and previous grades; (4) prediction of trade grade average using admission criteria is unacceptable; (5) admission criteria can be used to identify potential dropouts; and (6) different races score differently on the admission test. The follow-up instrument developed was found to be useful. It was concluded that the admission criteria are effective in selecting academically qualified students; however, it may discriminate against minority groups. It was also concluded that the criteria can predict academic but not trade success. Recommendations, for using only the test and grades for admission, criteria, and for further research, were made. (KC)

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A STUDY OF ADMISSIONS CRITERIA AND ITS RELATIONSHIP TO ACHIEVEMENT IN CONNECTICUT REGIONAL VOCATIONAL TECHNICAL SCHOOLS

R.W. Whinfield

April 30, 1981

Department of Higher, Technical and Adult Education
University of Connecticut
Storrs, Connecticut 06268

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Chapter 1

INTRODUCTION

This study was begun in January of 1979. It's purpose was to evaluate the admission criteria being used by the Regional Vocational Technical Schools for the years 1977, 1978 and 1979. The process was simply to draw a sample of students from all schools, representing race and sex distributions of the total population. Using student application forms and school records, data on each of the students in the sample was collected, coded, entered into a computer and verified. The data was then treated statistically for the preparation of this report.

The findings of the first year of the study are reported in the first final report.[1] In brief summary, the findings were:

1. The admissions criteria is not purposefully or or inadvertently discriminating against groups by race or sex for the two years of 1977 and 1978.

2. Students who were enrolled[2] in the vocational technical schools in the year 1978 as a group, were academically superior to the group which applied but was not admitted.

3. The very best predictor of admission is the Interview. Grades and academic Test are moderately good predictors, but Attendance is of no value.

4. Admission Grades, admission Test and Interview could not be demonstrated to be good predictors of 9th grade grades.

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[1]Whinfield, R.W., A Study of Admission Criteria and its Relationship to Achievement in Connecticut Regional Technical Schools, Phase I, University of Connecticut, May 1980.

[2]Enrolled student is one who was reported enrolled. This is slightly different than admitted. Some students were admitted but did not enroll. These were replaced from each schools waiting list.

Admissions Criteria

The second phase of this study consisted of continuing to collect data on the students in the sample for the purpose of determining whether or not the admission criteria and success in school could be used to predict second and third year grades. More specificially the objectives of this study were:

1. To study the characteristics of students enrolled in 1979 and relate these to the criteria used for admission.

2. To compare the 1979 enrolled students characteristics to the characteristics of the 1977 and 1978 enrolled students on the relationship between student characteristics and criteria for admissions.

3. To compare the 1979 enrolled students to the 1977 and 1978 enrolled students on the relationship between criteria used for selection and academic and trade achievement.

4. To develop and pilot-test a follow-up study to maximize the effectiveness of obtaining data on the 1977, 1978, and 1979 enrolled students after they leave school and enter the labor market, or pursue higher education, including graduates and dropouts.

The study is reported in the next three chapters. Chapter 2 deals with the first three objectives as stated in the proposal and in addition, looks at the school leaver. Chapter 3 deals with the follow-up study and Chapter 4 reports findings and conclusions.

Chapter 2

SELECTED COMPARISONS

2.1 OBJECTIVE I

To study the characteristics of students enrolled in 1979 and relate these to the criteria used for admission.

Findings from last years report indicated that the selected students were academically superior as a group to those not admitted, and further, that the sending school evaluations and recommendations showed the enrolled students to be superior in behavior as well as achievement. Yet, the enrolled students and the non-admitted students were not different on demographic and family characteristics.

The question is whether or not there is a correlation between personal, family and sending school variables and the admission criteria. To answer this, each of the admission criteria was tested as a dependent variable in a regression procedure with race, sex, mother's occupation, father's occupation and kind of class (homogeneous or heterogeneous) in which a student was enrolled, (5 behavior characteristics reported by the sending school). 10 variables in all.

The test of the predictive value of the regression equation is R^2 which represents the percentage of the variance of the dependent variable accounted for by the independent variables. The larger the R^2, the higher the prediction level. Acceptible levels vary, but minimal acceptance for purposes of this study is 40%.

There is only one R^2 which approaches importance. (Table 1) The Admission Test for the enrolled students has 37% variance. This is accounted for by kind of class as well as his/her race. This suggests that the use of the Test score for admission would operate more favorably for those in homogeneous classes and for White students. But it is at a very low level; and not at all significant.

However, the potential discrimination seen in the Test score does not exist in the prediction of the Total Score, which is the score actually used for admission.

TABLE 1

Results of Regression Analyses of Sending School, Personal and Family Variables with Admission Variables

Dependent Variable	R^2 % of Variance Accounted for	Order of Entry
Interview Score	0.211	1) Responsibility, 2) Homo-Hetero Class 3) Father's Occupation, 4) Days Absent, 5) Punctuality
Test Score	0.375	1) Homo-Hetro Class, 2) Race, 3) Effort, 4) Responsibility, 5) Punctuality
Attendance Score	None	None
Grade Score	.246	1) Effort, 2) Homo-Hetero Class 3) Cooperation, 4) Responsibility,
Total Score	0.051	1) Number of Siblings, 2) Responsibility

2.1.1 Summary of Objective I

The admission Test score seems to be related to White students who were enrolled in homogeneous classes. The other admission variables are unrelated to any personal, family or sending school variables used in the study. Attendance was totally unrelated. The Total and Interview scores were to low to be considered to be of importance.

Since the variable Total is not related to the non-academic variables, there is an assurance that the admissions procedure does not discriminate on the non-academic variables of race, sex, parents occupation or behaviorial traits.

2.2 OBJECTIVE II

To compare the 1979 enrolled student characteristics to the characteristics of the 1977 and 1978 enrolled students on the relationship between student characteristics and criteria for admissions.

2.2.1 Student Distribution by Race and Sex

In last years report, an analysis was made of the relationship of enrolled students to the pool of students who applied. This was done to determine whether the distribution of selected students deviated from the distribution of students who applied on the basis of race or sex. It was done for each year and between years. No significant differences were found.

In this years study, the 1979 applicant pool was compared to the enrolled group on the variables of race and sex. A second comparison was made between the 1978 and 1979 enrolled students on race and sex.

No statistically significant differences was found between the 1979 applicants and the enrolled student group on the distribution by race and sex. Students were selected in virtually the same distribution of race and sex as they were represented in the application pool. (Table 2)

When the 1979 admitted group was compared with the 1978 admitted group, there were no significant differences (Table 3). The 1979 enrolled group had virtually the same distribution of race and sex as the 1978 enrolled group.

Over the three years studied, the distribution of race and sex among the applicant groups has not significantly changed. Further, the ratio of students selected by race and sex has remained constant.

2.2.2 Student Characteristics

Comparison of student characteristics in the first years report, between the 1977 and 1978 groups indicated that on variables related to admissions, demography and sending school reports, there were no differences.

A similar comparison was made between the 1978 and 1979 enrolled students. The students were compared on three variables related to the family, 13 variables of sending school information, the five admission scores, 10 admission sub-

TABLE 2

Comparison of Distribution of Applied and Enrolled Students
By Race and By Sex, 1979

	BLACK		HISPANIC		WHITE		
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	TOTAL
Number Applied	409	364	261	157	4604	1158	6953
Row %	5.88	5.24	3.75	2.25	66.22	16.65	
Number Accepted	209	181	146	70	2618	717	3940
Row %	5.30	4.59	3.71	1.78	66.45	18.20	

df = 5 v2 = 7,987 S.L. = .20

scores, and 8 variables of the first year experience in the RVTS's. The results showed the students to have statistically significant differences on only the Interview and its sub-variables of attitude, readiness and motivation. (Table 4). The Interview was not changed in its scaling from one year to the next. It consisted of the evaluation of three personal characteristics, attitude, readiness and, motivation. Each of these was judged on a twelve-point scale and totalled. The cause of the differences between the two years would be judged to be related to the processes used in the Interview, and not the Interview scales. The alternative explanation is that the students of one year were in fact different from the students of the other year. Since there was so much similarity on other variables, the expectation would be in favor of the former assumption.
It appears that the 1979 enrolled students are not statistically different than the 1978 students, or for that matter, from the 1977 students (previous tests showed no significant differences between 1977 and 1978 students).

The distribution by sex, is obviously not proportionate to the distribution in the total population. In 1977,

TABLE 3

Comparison of distribution of 1978 and 1979 Applicants By Race and Sex

	BLACK		HISPANIC		WHITE		
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	TOTAL
1979 Applied Students	409	364	261	157	4604	1158	6953
Row %	5.88	5.24	3.75	2.26	66.22	16.65	
1978 Applied Students	361	315	210	117	4543	1145	6691
Row %	5.40	4.71	3.14	1.75	67.90	17.10	

df = 5 x2 = 10.615 S.L. = .17

enrolled females was 23.36% of the total, in 1978 was 23.56% and in 1979 was 24.45%. There is a very slow but positive gain of female enrollees in the regional vocational technical schools. In referring to Table 4, the T-Value is a measure of differences between the two groups on each variable. Whether or not this is significant is determined by the probability. Only four variables (Interview and its 3 sub-variables) have a significance level greater than .05.

Two questions remain relative to the student characteristics and posed in the previous report; 1) is the race-sex distribution representative of the distribution of the population as a whole? 2) is the distribution of enrolled students by race and sex appropriate for each school?

TABLE 4

A Comparison of 1978 and 1979 Enrolled Students on Non-academic Variables

Variable	T-Value	Probability
Family Characteristics		
Father's Occupation	1.02	0.308
Mother's Occupation	-0.57	0.571
No. Brothers & Sisters	1.66	0.096
Sending School Variables		
Effort	1.28	0.202
Behavior	0.80	0.421
Responsibility	1.39	0.162
Punctuality	0.56	0.579
Cooperation	0.74	0.458
Math	0.51	0.609
Science	-1.09	0.273

Admissions Criteria

English	-1.09	0.273
Social Studies	0.27	0.788
Days Absent	6.71	.2847
Grades Repeated	1.03	0.308
Homogeneous Type	0.77	0.507
Recommend. of School	-0.61	0.545
Admission and Admissions Sub-Scores		
Motivation	3.70	0.0002*
Attitude	3.68	0.0002*
Readiness	4.16	0.0001*
Admission Score Grades	1.23	0.217
Admission Score Test	0.39	0.162
Admission Score Attend	0.81	0.418
Admiss. Sc. Interview	4.92	0.0001*

Admissions Criteria

Total AdmissionScore	-0.57	0.571
9th Grade Scores		
Trade Performance	-0.17	0.864
Trade Theory	0.58	0.564
Math	-.032	0.439
Science	-0.32	0.750
English	1.031	0.302
Social Studies	0.77	0.439
Blueprint Reading	-2.56	0.051
Days Absent	1.88	0.060

*Significance at .05 Level

2.2.3 Summary of Objective II

There is a high level of consistency in the distribution of applicants by race and sex over the three year period. In each of the three years, the enrolled students distribution was not significantly different than the applicant pool. The students academic, personal, family and admission variables are not significantly different over the three years.

2.3 OBJECTIVE III

To compare the 1979 enrolled students to the 1977 and 1978 enrolled students on the relationship between criteria used for selection and academic and trade achievement.

2.3.1 Grade Point Average

The prediction level of Academic Grade Point (English, Mathematics, Social Studies and Science) is shown in Table 5 Four admission criteria were used for prediction. Test, Interview, Attendance and Grades.

TABLE 5

Prediction of Academic Grade Point Average for 9th, 10th and 11th Grades, Admission Criteria as Independent Variables

Grade	Year	N	R^2	Order of Entry
9th	1977	474	.29824	Test Grades Interview
	1978	570	.32445	Grade Test Attendance Interview
	1979	542	.37064	Grade Test Attendance Interview
10th	1977	421	.22868	Grades Test Interview Attendance
	1978	472	.23831	Grades Test
11th	1977	286	.23147	Grades Test Interview

R^2 represents the percentage of accuracy in predicting grades from the admission criteria. In the table, the order of the variable names represent the best contribution of the variables for prediction. Where only two or three of the variable names appear, the excluded variables were not important in the prediction.

For the Academic Grade Point, a very modest level of prediction is obtained in the 9th grade for each of the three years and the prediction is better with each succeeding grade. However, that prediction level falls off to an unsatisfactory level in the tenth and eleventh grades.

With only one exception, 9th grade GPA for the 1977 group, grades are consistently the best predictor variables augmented by the Test scores. The Interview and Attendance enter marginally as third and fourth variables or not at all, and contributing very little or no additional prediction.

Table 6 is similar to table five, but each year is divided by sex and by race. Also, predicting the 10th grade GPA is done with the admission variable and with the 9th grade GPA added, and predicting 11th grade GPA with 9th and 10th grade GPA's added as independent variables.

TABLE 6

RESULTS OF REGRESSION EQUATIONS FOR TOTAL SAMPLE, EACH RACE AND EACH SEX FOR 1977, 1978 and 1979 WITH ACADEMIC GRADE POINT AVERAGES FOR 9th, 10th, 11th GRADE

		Entered 1977			Entered 1978			Entered 1979		
		N	Order of "V" Entry	R^2	N	Order of "V" Entry	R^2	N	Order of "V" Entry	R^2
	Total	474	CBT, GRADE, INTER	.29824	570	GRADE, CBT, ATT, INT	.32445	542	GRADE, CBT, ATT, INTER	.37064
9th Grade	Black	62	CBT, GRADE	.50184	80	GRADE, CBT, ATT	.38272	79	CBT, GRADE, ATT	.33671
	Hispanics	53	CBT, GRADE, INTER	.58743	82	GRADE, CBT	.52192	67	GRADE, CBT, INTER, ATT	.45672
GPA	White	357	CBT, GRADE, INTER	.22005	406	GRADE, CBT, INTER	.27287	394	GRADE, CBT, ATTEND INTER	.38143
	Males	363	CBT, GRADE, INTER	.31795	447	GRADE, CBT	.38744	399	GRADES, CBT, ATT	.38218
	Females	110	CBT, GRADE	.25138	121	GRADE, CBT, INTERV	.38741	142	GRADES, CTB, ATT, INTER	.34442
	Total	412	GPA9, GRADE, INTER CBT	.49172	470	GPA9, GRADE, INTER	.53610			
10th Grade	Black	56	GPA9, CBT, GRADE	.68630	58	GRA9, ATT, GRADE, INTER	.67035			
	Hispanics	45	GPA9, INTER	.68001	56	GPA9, CBT	.47699			
	White	315	GPA9, GRADES, GRADE	.41906	346	GPA9, GRADE, ATTEND	.53907			
GPA	Males	318	GPA9, GRADES	.48295	349	GPA9, GRADE, INTER	.52570			
	Female	93	GPA9, GRADES, CBT	.51719	120	GPA9, GRADE, CTB	.57391			

		Entered 1977			Entered 1978			Entered 1979		
		N	Order of "V" Entry	R^2	N	Order of "V" Entry	R^2	N	Order of "V" Entry	R^2
11th Grade GPA	Total	275	GPA10, GRADE, CBT, GRA9	.49209						
	Black	30	GPA10, ATT, GPA9	.67479						
	Hispanics	21	GPA10, CBT	.26810						
	White	222	GPA10, GRADE, GPA9, ATT, CBT	.48290						
	Male	216	GPA10, GRADE, GPA9	.44055						
	Female	58	GPA10, CBT, GRADE	.67482						

CBT = Admission Test Score
GRADE = Admission Grade Score
INTER = Admissions Interview Score
ATT = Admission Attendance Score
GPA9 = 9th Grade Grade Point Average
GPA10 = 10th Grade Grade Point Average

Looking across the 9th grade, there is a variation in prediction from 1977 to 1979, generally increasing. There is considerable deviation of prediction of GPA by race in 1977, .22605 for Whites and .58743 for Hispanics. There is quite a uniform prediction in 1979. The highest prediction level is for the Hispanic group in all three years, indicating that this group is probably more homogeneous than the other groups.

There is a difference, for 9th grade comparisons in the order of predictor variables. In 1977, the Test was the strongest predictor, but in 1978 and 1979, Grades was the strongest predictor. There is only one deviation, the 1979 Black group, where the Test was the best predictor. This difference cannot be explained but suggests that the admission criteria is acting differently for Blacks than for Hispanics or Whites.

Looking across grade levels, the 1977 group shows an increased prediction level from 9th grade to 10th grade for all groups. From 10th to 11th grade, however, the predictions remain quite stable. The only deviation from this is the Hispanic group which showed a large drop in prediction from 10th to 11th grade.

In general, the 1978 group showed better predictability in the 10th grade than did the 1977 group.

Table 7 shows the mean scores of the races and sexes by year. The most striking things in this table are 1) the preceeding years GPA's are the best predictor of GPA 2) Blacks and Hispanics have higher prediction levels than Whites, 3) there is not much difference between males and females except for the 1977 11th grade where the prediction of female Grades is considerably higher than for male Grades.

The differences in prediction are traceable to differences on Test scores. Just what are the relationships between the groups in each variable? T-Tests were run between each combination of groups for each year. The results are shown in a table in Attachment 5. There are significant differences between Blacks and Whites and Hispanics and Whites on the Test in each of the three years, Whites scoring higher. There is a significant difference between Blacks and Hispanics on the Interview in all three years. The Interview favored the Hispanics even over Whites. On Total Scores, Blacks did significantly poorer than Whites in all three years.

The result that the Blacks and Hispanics obtain a mean academic grade in their first year almost equal to Whites yet they score considerably lower than Whites on the Admis-

TABLE 7

Mean Scores on Admission Criteria and First Year Grades for Students Enrolled 1977, 1978 and 1979

	N	CTB	ATT	INTER	GRADES	GPA	TPA
				1977			
Black	78	16.520*	7.831	13.500*	23.500	2.943	3.575
Hispanic	67	17.154	7.576	14.438	24.858	3.008	3.625
White	418	23.305	7.700	14.318	22.742	3.129	3.563
Male	421	22.022	7.796	14.322	22.332	3.043	3.526
Female	141	20.300	7.433	13.907	25.385	3.245	3.754
				1978			
Black	88	14.750*	7.663	26.292	23.848	2.951	3.209
Hispanic	87	14.721	7.483	27.012	24.310	3.179	3.286
White	451	18.205	8.159	27.265	23.053	3.193	3.538
Male	447	17.423	8.278	27.240	22.970	3.141	3.411
Female	180	16.771	7.287	26.710	24.258	3.195	3.564
				1979			
Black	99	22.438*	7.707	24.212	22.737	3.065	2.986
Hispanic	95	24.200	6.473	27.096	23.589	3.094	3.384
White	465	27.753	8.125	25.347	22.929	3.178	3.556
Male	477	26.830	8.101	25.149	22.603	3.112	3.448
Female	180	25.475	7.089	26.161	24.039	3.253	3.447

sion Test is an important finding. It suggests that the Test may be race biased. The alternative reason for the discrepency is that Hispanics are favored in school with higher grades than the other races. This would result from

their being in homogeneous groups in seventh and eighth grade.

2.3.2 Trade Grade Average (TGA)

Table 8 shows the prediction of the Trade Grade Average, the averaging of trade theory and trade performance grade. In the preceeding report it was shown that 9th grade trade grades for 1977 students could not be predicted. It was hypothesized at that time that this was due to the fact that at best, students had only one marking period of trade in 9th grade.

However, the most notable thing about the table is that when using admission criteria, no satisfactory prediction can be made of 10th or 11th grade trade grade average. Further exploration of race and sex showed no improvement.

TABLE 8

Prediction of Trade Grade Average for 10th and 11th Grades Using Admission Criteria as Independent Variables

Grade	Year	N	R^2	Order of Entry
10th	1977	421	.09126	Test Grades Interview
	1978	472	.15269	Grades Test Interview Attendance
11th	1977	293	.13628	Test Grades Attendance

2.3.3 Summary of Objective III

It is possible to predict Academic GPA at an acceptable level in the 9th grade, but the prediction decreases each year if only admission criteria are used for dependent variables. Satisfactory levels of prediction are achieved with the previous years GPA added to co-predicting variables. It is, of course, not surprising to discover that the best predictor of grades are the previous years grades.

Trade grades, however, are different. The admissions variable do not seem to relate in any meaningful way to the Trade Grade Average.

The change in Admissions Tests (in 1977 the Academic Promise Test was used for admission, in 1978 and 1979 the Comprehensive Test of Basic Skills was used) seemed to have resulted in diminishing the importance of the Test in predicting academic achievement.

The admission criteria are to a large extent academic achievement variable (grades, math and reading tests) with a more subjective interview. There is no apparent attempt to measure potential trade skills at the time of admission. The assumption seems to be that the use of academic related variables and an interview supplemented by attendance would somehow identify students with potential trade skills. This assumption is not verified by this finding.

The findings seem to indicate that the admissions test maybe racially biased. But the finding is not conclusive.

2.4 ADDITIONAL FINDINGS

In addition to measuring the objectives stated in the proposal, two other concerns were explored: 1) the possible prediction of school leavers using the admission criteria, and 2) whether the admission variables of Grades and Test were as good at predicting as was the Interview.

2.4.1 The School Leaver

The leaving rate as of June, 1980 for each of the three groups is indicated in Table 9 It would appear that the bulk of leavers leave in the first two years.

Admissions Criteria

TABLE 9

School Leavers as of June, 1980, by Year Enrolled

	N	Leavers	%
1977	572	137	23.95
1978	609	125	20.53
1979	667	86	12.89

To find whether or not admission variables can predict dropout, a discriminant function was run for each year. The results are indicated in Table 10

TABLE 10

Results of Discriminant Function Prediction of School Leavers By Year Enrolled

Year	N of Leavers	% of Leavers Predicted To Leave	Order of Prediction of Variables
1977	111*	51.35	Test Grades Interview
1978	111	53.15	Test Grades Interview
1979	85	62.53	Test Grades Interview

*The number of leavers in this table differs from Table 8 because in doing the discriminant analysis, students with missing data on any one variable are excluded.

Admissions Criteria

When the Test, Grades and Interview are used in a prediction of leavers, for students in the first year, prediction seems to be about one in three, but it decreases each year there after. The best predictor is the Test in all cases. In theory, the admission criteria could be used to identify one half of the potential dropouts. However, if a formula were established to do that, it would exclude about the same number who had the same characteristics and who would "make it" in the school. This information could be used to identify potential leavers and schools could then build programs to provide special services for them. Further analysis of this problem is projected for next year.

2.4.2 Independent Prediction Ability of Admission Variables

In the first report, it was noted that the Interview was the strongest predictor of admission. This raised the question as to what level of prediction could be reached using each variable independently. Table 11 shows the independent prediction level of each of the four variables.

TABLE 11

Prediction Level of Each Admission Variable

	N	% Accurately Predicted
Interview	786	84.06
Test	786	83.16
Grades	820	75.60
Attendance	818	71.52

The Test is nearly as good a predictor as the Interview. Grades is only a moderately good predictor and Attendance is quite weak. The problem with the Test is that it seems to be related to Race (See Table 1).

It can be noted that the order of variables used to predict achievement (Table 5) is just the reverse of the

order of variables in predicting success. This is more a function of the statistics than of the variables.

The admission criteria have what is known as "restricted range." The students selected do not have Test scores, Grades, Interview scores or Attendance over the whole range of scores -- the lower portion of each of the normal distribution is cut off, for the applicants with low scores are rejected. The variable which is the best predictor of admission is very likely to have a smaller range of scores among those selected than do the other variables. Thus, the Interview because of the small range of scores of the admitted students will have less potential in predicting school achievement.

Chapter 3

FOLLOW-UP STUDY

3.1 OBJECTIVE IV

To develop and pilot test a follow-up study to maximize the effectiveness of obtaining data on the 1977, 1978, and 1979 students after they leave school and enter the labor market or pursue higher education, including graduates and dropouts.

In preparation for producing the ultimate measure of this longitudinal study -- how successful are the graduates, and how is that success related to admissions -- a pilot test was done of instruments and processes associated with a follow-up study.

3.1.1 Establishing the Criterion Variable

Before the follow-up study could be done however, the first problem was to determine what the measure of success would be. This has been a continuous problem with follow-up studies of Vocational Education. The general expectation is that "Success" is synonymous with job placement, particularly in the job area for which a student was prepared.

Most vocational educators feel this is an inadequate criterion, for it ignores what many perceive to be other important benefits -- good citizenship for example. The Regional Technical Schools, are, after all, high schools, and their role is certainly more than the production of employees.

To establish "success" criteria, a series of activities were undertaken in 1979. A review of the literature relative to "success" was conducted. But for lack of consistency in the literature, it was decided to try a modified Delphi approach. Over 200 persons were identified and contacted with an open ended question of "What determines success of a Vocational High School Graduate?" 184 responded.

Not only did the people respond with enthusiasm, but many sent literature they or their organization had developed. From this a preliminary set of goals was established.

The concluding activity of the Delphi was a workshop in which 32 participants reviewed and synthesized the finding of the Delphi reducing the results to a useful list with suggestions on how certain data might be collected.

Following is a summary of the findings of the participants of the conference held in 1979 to determine what criteria should be used in the measurement of "Success."

1. Academic Skills

   a) To have sufficient skills and knowledge in communication and computation to perform effectively as a worker and citizen.

2. Occupational Skills

   a) To be immediately productive

   b) To be continuously productive

   c) Be able to adapt to change

   d) To be prepared to grow in occupational skills

3. Citizenship

   a) Be conversant with the functioning of society

   b) Be conversant with finances and economics

   c) Be a participating citizen

4. Personal and Interpersonal Relationships

   a) Have problem solving and decision making skills

   b) Be able to show responsibility as far as attendance and completion in school and on the job

   c) Be a life-long learner

   d) Be able to get along with employers and employees

Once the set of criteria was established, it was necessary to develop appropriate questions, establish a procedure for conducting a follow-up, and test out the whole plan.

3.1.2 FOLLOW-UP STUDY

3.1.2.1 Procedures

Over the summer months of 1980, a trial follow-up study was conducted using 1979 graduates and leavers from two Regional Vocational Technical Schools. The graduates were asked to provide the names and addresses of their employers, who were also contacted. The purposes were:

1) To design and test questions and questionnaires.

2) To establish and test procedures for conducting the survey.

3) To identify problems associated with conducting the survey.

3.1.2.2 Sample

The class of 1979 from two schools was used, the two schools being Kaynor Regional Vocational Technical School, Waterbury, and A.I. Prince Regional Vocational Technical School, Hartford.

Both graduates and leavers were included. The total group of leavers and graduates from Kaynor was included. The total group of graduates but only eleven leavers from A.I. Prince were included. The number of graduates and leavers by school is shown in Table 12 A total of 347 students were in the original sample.

3.1.2.3 Response Rate

There were important though not significant differences in response rate between the schools. First, there was a problem of being unable to locate students. Questionnaires sent to the persons were returned as "No Such Address", "No Such Person At Address", "Undeliverable". Efforts were made to contact these persons, first, by checking with the school for correct addresses (none were wrong), second, by mailing to "occupant" with the request for forwarding addresses -- only 3 such letters received responses. In some instances,

TABLE 12

Number of Graduates and Leavers In Sample By Schcol

N = Number
P = % Cell of Total

N % of Total	Graduates	Leavers	Total
A.I. Prince	N = 144 P = 41.15	N = 11 P = .03	155
Kaynor	N = 148 P = 42.65	N = 44 P = .13	194
Total	N = 292	N = 55	N = 347

the students parents replied indicating the person was in the armed service. A request for service addresses were invariably denied. (Table 13)

It is obvious that A.I. Prince presented a rather significant problem in tracing of students. What is proposed to overcome this, is the development of a list of such people circulate first to school staff and then to students who school staff might identify as friends of the untraceable students.

From those who presumable were reached (their questionnaires were unreturned) the response rate is as indicated in Table 14, 15 and 16

Of the 347 included in the original sample, 208 were contacted (a loss of 17.24% who were unable to be found) of this, 152 responded for a 52.78% response rate. For the graduates, the response rate was 57.72%, while for the leavers it was only 33.81%.

The response from the Kaynor graduates is relatively high as follow-up studies go (66.18%). However, failure to have the non-respondents represented in the study in all

TABLE 13

Students Not Able to be Traced As % of Total By School And Graduate/Leaver Status

N = Total
K = Untraceable
% is of Cell Total

	Graduates	Leavers
A.I. Prince	N = 144 K = 35 % = 24.31	N = 11 K = 3 % = 27.27
KAYNOR	N = 148 K = 11 % = 7.43	N = 44 K = 10 % = 22.73
Total In Sample (N-K)	246 % = 15.75	44 % = 23.64

likely-hood would present a bias to the findings. It is proposed that a sample of 15% of the non-respondents be generated, stratified by school, and these then be weighted so that there is what can be considered a 100% sample.

The leavers also present a significant problem. To obtain a more significant response a much more intensive effort must be made. It is proposed that a random sample of leavers who do not respond, be generated, and a telephone Interview technique be used. This procedure is presently being developed by a doctoral student.

TABLE 14

A.I. Prince Response By Graduates and Leavers

N = Cell Number
% = % ofColumn

	GRADUATES	LEAVERS
Responded	N = 52 % = 47.72	N = 3 % = 37.50
No Response	N = 57 % = 52.29	N = 5 % = 62.50
Total	N = 109	N = 8

3.1.3 Questionnaire

Three basic questionnaires were used to gather data from the students. They were not very different one from another. The first questionnaire (Attachment 1) was designed to be used with both graduates and leavers. It was a composite of questionnaire 2, just for graduates, (Attachment 2), and questionnaire 3, just for leavers (Attachment 3). The purpose was to see whether a condensed questionnaire would be responded to as well as a more specific questionnaire.

There was no significant difference in the response rate on Questionnaire 1 and 2 for graduates as seen in Table 18 Since so few leavers responded, no statistical measure of differences between questionnaire 1 and 3 could be made. The responses to each was the same, but the percentage responses was larger for than for 1 than for 3, the specific questionnaire (Table 19 and 20).

Two mailings of the questionnaire were made, the second following the first within ten days. After another ten

TABLE 15

Kaynor Response By Graduates and Leavers

N = Cell Number
% = % of Column

	GRADUATES	LEAVERS
Responded	N = 90 % = 66.18	N = 7 % = 20.89
No Response	N = 46 % = 33.82	N = 27 % = 79.41
Total	N = 136	N = 24

days, a third mailing was conducted to non-respondents. The third mailing was a very brief questionnaire, to gather only basic data (Attachment 4). This increased the total response by 9.37% for graduates, but only 2.38% for leavers.

The length of the questionnaire does not seem to make much difference. Even though questionnaire 1 was longer than questionnaire 2 and 3, for it asked information about both the graduates and leavers the, differences in response was negligible.

3.1.3.1 Employee Questionnaire Response

A questionnaire was also designed for employers. The students were asked to give the names and addresses of their present employers, and those employers were contacted. Of 114 contacted, 107 responses were received for a relatively surprising return of 93.86%! (Table 21). This response also implies valid responses by the students, since only 3 letters were returned with address unknown.

TABLE 16

Total Response By Graduates and Leavers

N = Cell Number
% = % of Column

	GRADUATES	LEAVERS
Responded	N = 142 % = 57.72	N = 10 % = 23.81
No Response	N = 104 % = 42.28	N = 32 % = 76.19
Total	N = 246	N = 42

TABLE 19

Graduate Responses, Questionnaire One and Two

N = Cell Number
% = Raw Percent

	Unreachable	No Response	Responded	Total Sent
Questionnaire 1	25	50 40.65	73 59.35	123
Questionnaire 2	22	53 43.44	69 56.56	122

X^2 = 0.196 Sig. 0.658

Admissions Criteria

TABLE 20

Leavers Responses, Questionnaire One and Three

N = Cell Number % = Row Percent	Unreachable	No Response	Responded	Number Sent
Questionnarie 1	8	20 80.00	5 20.00	25
Questionnaire 2	5	12 70.59	5 29.41	17

TABLE 21

Return Rate of Employers

Response	N	% of Total
No Such Address	3	2.56
Unreturned	8	6.84
Returned Limited Data	35	29.91
Returned Full Data	71	60.68
Total	117	100.00

3.1.3.2 Letters

It was hypothesized that letters accompanying the questionnaire from the directors of the Regional Vocational

Admissions Criteria

Technical Schools would draw a better response than letters from the University. To test this, half of the total group received letters from the directors, half from the project director. Table 22 illustrates the total response.

TABLE 22

Response By School By Letter

X = Number Sent
N = Cell Number
% = % N of X

Responses

	School	University
A.I. Prince	X = 55 N = 25 % = 45.45	X = 62 N = 30 % = 48.39
Kaynor	X = 84 N = 49 % = 56.98	X = 86 N = 48 % = 55.81
Total	X = 139 N = 74 % = 53.23	X = 148 N = 78 % = 52.70

The response rate from the university letter was 52.70, and from the schools 53.23. The difference is so small that for ease of administration, a letter from the University should suffice.

3.1.3.3 Mailings

The basic procedure of two mailings in a ten-day period followed by a short questionnaire seems appropriate for the graduates, it can be sent out over the project director's signature. This should result in a return of approximately 60%, of those who can be reached by mail. But there are some additional procedures which need to be included.

1) The addresses of the graduates should be obtained immediately after graduation, and verified or up-dated by postal card within six months (mail will not be forwarded after six months). In this way, the new address of the non-reachables will be reduced.

2) The mailing should be in May. The described procedure was conducted in July, a time when many may have been on vacation, or heavily engaged with summer activities.

3) The response of the non-respondees needs to be studied. A sample of non-respondees should be contacted by telephone interview. The need for this is to establish in what ways non-respondees may differ from respondees in their achievement and perceptions. It is clear, from other studies that there are differences betweenrespondees and non-respondees.This cannot be ignored.

Leavers pose a significant problem. They are harder to find, and when found are less likely to respond, a not particularly surprising phenomena. It is proposed that rather than using the total population, that a sample of approximately 200 be generated. The procedure used to obtain responses will be by mail, for a start, followed by telephone interviews. The response on that number can be expected to reach 80 to 85%. However, the problem of finding them is greater than for graduates. Addresses should be obtained as soon as possible, and the lost found. This would require following leavers back to their high schools (most leavers return to their town school) or tracing them through such services as the Department of Motor Vehicles, or town records.

3.1.4 Summary of procedures:

The project staff feels confident that the procedures developed and proposed will result in a high response rate from former students.

It further believes that the analysis of the questions on the questionnaire will react in reliable, valid instruments.

The response of the employers was most dramatic.

3.1.5 Utility of Responses

The results of the responses to the questionnaire are reported here, but care must be taken in interpretation since not all questions were asked of everyone.

Only the findings relative to the graduates are reported, for there were only 10 responses from the leavers and enough missing data on these to make any conclusion or discussion foolhardy.

In interpreting the results, the criteria for success is looked at.

3.1.6 Academic Skills

When the follow-up study of students in the sample is done, data on academic skills would be collected from the school in the form of grades and test results. Since this follow-up study was primarily conducted to establish procedure and validate questions, there was no effort to obtain student grades. If and when this follow-up study is implemented for the sample of this study, this data will already be available.

The questionnaires did try to collect student and employers perception of the question of academic ability. Table 23 shows the students perceptions of how well prepared they were. While these are not exclusively academic abilities, the two identified skills of communication and mathematics are perceived by the students, to be quite above average on a 4-point scale.

The one academic ability evaluated by the employers, (Table 24) shows communication skills was ranked lowest of all the abilities evaluated. It was just at the medium on a three point scale.

Admissions Criteria

TABLE 23

Graduates Perceptions of How Well Prepared they were

4-Point Scale N = 54 (Questionnaire Number 1)

Area	Mean
Preparation for the labor market	3.05
Finding a job	2.98
Getting along with others	3.24
Understanding management-labor relations	2.63
Mathematical Skills	3.19
Communication Skills	3.00
Family relations	2.08
Understanding problems of discrimination	2.20
Understanding yourself	2.70
Understanding changing technology	3.04

One can conclude that academic ability can be judged with this kind of input.

3.1.7 Occupational Skills

3.1.7.1 To be immediately productive

For use with the studies sample, some of this information will be gotten from the school in the form of a questionnaire to the shop instructor. While that is a subjective source, it is probably the best single source available.

In addition to using instructor data, information about how long it actually took to get a job (for those who were employed) was asked. This would indicate the students salable skills. The average length of time to get a job was 3.72 months, for 88 employed graduates, a moderately good time, given the labor market conditions. A question relative to students attitude was asked ". . . did you really plan to work in that occupation after high school?" 36.3%

of the students said they didn't, and of these, 28.6% were employed in the field for which prepared. Students were also asked if they wished they'd attended another school. 28.7% said yes. Of them, 12.7% were employed in the area for which prepared.

While answers to these questions give information about actual time to get a job and potential for immediate employment, the question about productivity can be better answered by the employer. They were asked to evaluate the following factors at the time of employment and at the time the employers responded (Table 25).

Two rather striking things are that the job skill and quality of work level are evaluated as the two lowest factors, but still above average at the time of employment.

Students did seem to be ready for immediate productivity.

3.1.7.2 To be continuously productive

The most frequently used measure of success of Vocational Education and of their students is whether students have been employed in the occupation for which they were trained. This is a highly disputed issue, for the definition of what is "Occupation for which trained" is not clear. Is a graduate auto mechanic who works in an auto parts store in the occupation for which trained? If he works in a filling station? If he works as an upholsterer in automotive production?

A way to resolve it is to ask the graduate himself. Table 26 shows that 39.33% perceive themselves in a job for very much like that for which they were trained, 32.79% said no.

The responses of 142 graduates as to how they were engaged at the time they responded to the questionnaire is shown in Table 27

Of the 88 graduates employed, 82 reported incomes on their first job and incomes on their second job. Table 28 shows the means of these incomes (yearly, gross) and the differences between them.

There was an increase in the mean income of 857.34 in a one-year period. A mean increase of 10.63%

The status as of the time the questionnaire was completed gives some notion of productivity. A total of 72.67%

TABLE 25

Employers Evaluation At Time of Employment

3 Point Scale 1 = Poor 2 = Average 3 = Good

Question	Mean at Time of Employ. N = 88	Mean at Time of Response N = 71	Difference N = 71
Job Skills	1.884	2.333	+.449
Attitude Toward Work	2.239	2.414	+.175
Quality of Work	1.944	2.379	+.435
Potential for Advancement	2.164	2.281	+.114
Problem Solving Ability	2.000	2.155	+.155
Relations With Others	2.371	2.464	+.093
Relations With Supervisors	2.211	2.431	+.220
Ability to Communicate	2.000	2.211	+.211
Ability to Adapt	2.072	2.286	+.214

were employed. Reducing this to a percent of those available for the labor market, we eliminate the full-time and part-time students and find 92% are employed. Over 75% are employed full-time. Only 4.33% of those available for employment are unemployed -- far less than is typical for this age group.

TABLE 26

Is Your Present Job the Kind of Job You Prepared for At RVTS?

Catagory	N	%
Very Much	48	39.334
Somewhat	8	6.56
Little	26	21.31
Not At All	40	32.79

TABLE 27

Status of Graduates At Time of Completion of Questionnaire

Status	N	%
Employed F.T.	88	58.67
Employed P.T.	21	14.00
School F.T.	25	16.67
School P.T.	7	04.67
Homemaker	2	01.33
Unemployed	17	04.67
Total	160	

3.1.7.3 To grow in Occupational Skills

Growth in an occupation is best evaluated by the employer, therefore to measure this criteria, the employers were asked to evaluate the graduates "now" on the same characteristics as "on employment." The results are seen in Table 29There was a marked gain on every item, the lowest

TABLE 28

Income of Graduates with F.T. Employment

Yearly Gross

	Mean	Range
Pay on First Job	$8,053.67	$6,240-$13,720
Pay on Present Job	$8,911.01	$6,240-$15,960
Difference	$857.34	$0-$2,240

item - relations with others. But the students were highest on this item when they were employed. The most significant gain was in attitude toward work and quality of work. Certainly those who were still employed were still highly productive.

3.1.7.4 Be able to Adapt to Change

This is a difficult question to measure. Employers were asked to evaluate adaptability and the students measured above average. But this does not get the answer for those who were not employed.

One questionnaire asked if the employed graduate liked their job. 31% answered no, or not particularly.

The employed graduates didn't overwhelmingly like their jobs and were not particularly happy.

All of the items under Occupational Skills are measurable for the employed students, but not as clearly as for those who continue their education.

3.1.8 Citizenship

This goal was perceived as the second most significant after productivity but it's a devil to evaluate. It was suggested by the study group that good citizenship would be exemplified by 1) The graduates being productively engaged. They were, only 4.3% unemployed and 2) They participated in civic affairs. They were not participating to a large degree. Only two measures were used to determine this. a. Are you a registered voter? 30.08% of 123 responding said yes. b. Are you a member of a volunteer civic, social, sports, church and/or technical organization? 65.04% of 123 reported they were in no organization.

This is not a very impressive record but perhaps not much different than for the general public.

Questions about the students knowledge of social problems, of economic characteristics, etc. would be available from school records but a critical evaluation would be difficult for our purposes making this a measurable variable, but not impressively so.

3.2 PERSONAL AND INTERPERSONAL RELATIONSHIPS

3.2.0.1 Have problem solving and decision making abilities

Problem solving ability as evaluated by employers showed an above average score for the employed graduates. However, for those who were not evaluated by employers, one can only judge by a "happiness index." All students apparently made some decision after graduation, if only solving their personal problems. But it is extremely difficult to get any post-graduate information. It is, of course, possible to measure these two skills prior to graduation, but the intent of the objective is to see whether or not the student has demonstrated problem solving and decision making skills. It might be assumed that a reasonably happy person has been successful in problem solving. Such a question was asked on one questionnaire. The results showed that 72.121 were happy or very happy,only one of 61 indicated unhappiness.

3.2.0.2 Be able to show responsibility as far as attendance and completion in school and on the job

One measure is obviously attendance in and completion of school. Those records in school are probably available. But the best record is from the employers.

Admissions Criteria

On Table 24 the responses show the graduates to be above average on their potential for advancement.

A question about attendance needs to be asked of the employer.

3.2.0.3 Be a life-long learner

This was measured by identifying whether or not students were continuing their education. We found 16.67% were enrolled in school full-time, 4.67% part-time (Table 22). In addition, graduates were asked if they had to take additional training, and whether they planned to take additional training. Still another question asked whether or not their first job was an apprenticeship or on the job training (Table30).

TABLE 30

Students Activities and Interests in Education After Graduation

Full-Time Students	25
Part-Time Students	7
Needed Training After Employment	37
Plan on Training	66
Apprenticeship	8
On-the-Job-Training	12

Some respondees replied to two or more catagories, so no percentages are shown.

There is considerable concern with learning on the part of graduates. Some have already obtained further education, some are still engaged in education and some are planning to further their education.

3.2.1 Summary of Utility of Questionnaire

From the foregoing it is clear that from school records and questionnaires. The success criteria can be evaluated, but not as effectively or as directly as might be desired. The criteria of personal and inter-personal relations and citizenship needs some further exploration. This and other information can be obtained for employed graduates, but not so easily obtained for students.

Some further analysis of the questionnaire is needed if the study is to continue.

3.2.2 Other Data From the Graduates

3.2.2.1 Preparation

How did graduates perceive how well prepared they were for entering the labor market and society? Table 31 gives some insight into what the areas of least preparations were; "family relations" and "understanding yourself." Surprisingly, they felt less well prepared for "finding a job" than they felt about other job related problems.

3.2.2.2 Knowledge of Occupation

How did graduates perceive their knowledge about their occupation before entering the RVTS and after they completed. Table 32 indicates a position change in every item.

Knowledge of job security is the least well known piece of information both before and after employment.

How did students feel about the quality of various aspects of the RVTS program? Table 33 indicates that counseling and handling of discipline problems are the least effective of the items measured. All, however, are seen as above average.

3.3 SUMMARY:

The follow-up procedures seem clear, but some work needs to be done on the questionnaire. Discussion with the State Division of Vocational Education and other interested individuals should clarify what questions the reader wants answered.

TABLE 31

Graduates Perceptions of How Well Prepared for the Labor Market

4-Point Scale N = 54 (Questionnaire Number 1)

Area	Mean
Preparation for the labor market	3.05
Finding a job	2.98
Getting along with others	3.24
Understanding management-labor relations	2.63
Mathematical Skills	3.19
Communication Skills	3.00
Family relations	2.08
Understanding problems of discrimination	2.20
Understanding yourself	2.70
Understanding changing technology	3.04

TABLE 32

Students Perceptions of Their Knowledge About the Occupation

Three-Point Scale 1 = Low 3 = High

Area	Mean Before	Mean After	Change
Nature of Work	1.94	2.70	0.78
Conditions of Work	1.73	2.62	0.89
Rate of Pay	1.68	2.45	0.76
Job Openings	2.04	2.65	0.60
Long-Term Future	2.04	2.67	0.61
Job Security	1.98	2.50	0.53

Admissions Criteria

TABLE 33

Students Perception of the quality of Vocational Education

Five Point Scale 1 = Low 5 = High

Area	Mean
Vocational Education Instruction	3.93
Academic Instruction	3.53
School Building	3.46
Teacher Interest	3.65
Counseling	3.19
Placement	3.31
Flexibility of Program	3.84
Handling of Discipline	3.27

Chapter 4

SECTION III FINDINGS AND RECOMMENDATIONS

The previous two chapters provides discussion of the procedures as well as the findings. This chapter summarizes the findings in a more succinct fashion. This is followed by a discussion of the implications of those findings.

4.1 FINDINGS

4.1.1 The relationship of student characteristics to admission criteria

a. There is no relationship between the admission criteria and any of the variables related to family, sending school non-academic information, or personal characteristics.

b. The characteristics of the enrolled students in the three different years has remained constant.

c. The distribution of the applicant pool by race and sex has remained unchanged over the three years.

d. The distribution of the students enrolled is not significantly different than the distribution of applicants based on race and sex. This is true for all three years included in the study.

e. The personal characteristics, family characteristics, data from the sending school and all admission variables have appeared to remain constant from one year to the next.

f. The prediction of Academic Grade point average, using the admission criteria and previous grades is done at an acceptable level, and improves each year.

g. The prediction of Trade Grade Average using the admission criteria is unacceptable.

h. Admission criteria can be used to identify potential dropouts.

i. The Interview and the Test scores used in the admission procedure are about equal in predicting who will or will not be admitted.

j. The different races score differently in a consistant way on the admission Test, as well as on first year grades but the difference is more pronounced on the Test, Blacks and Hispanics scoring significantly lower than Whites.

k. There are no significant differences among the races on Academic Grade Point Average or Trade Grade Average in the 9th grade.

4.1.2 Effectiveness of the Follow-up Study

a. The use of alternative questionnaires has permitted the identification of variables which can be used to measure the criterion variables of "Success."

b. The response rate of graduates is not seriously affected by the length of the questionnaire or the origin of the letter. Persistance of mailing does increase the response.

c. The response of leavers is very low and will require more intense and persistent procedures to obtain responses.

d. The responses of the graduates proved to be reliable.

e. The response of employers is outstanding and appears to be valid and reliable.

f. All but one criterion variable of "Success" can be measured effectively with the data collected from the schools and the follow-up questionnaire.

4.2 CONCLUSIONS

4.2.1 Admission Criteria

a. The Admission Criteria is effective in selecting academically qualified students. Whether or not it discriminates among the races is not clear. There is a possibility that the Test does discriminate against minorities.

b. While the Admissions Test Score is as good a predictor of admission as the Interview, it appears to operate in favor of White students from schools with homogeneous classes.

c. The admission scores are moderately good predictors of academic grades, but are unable to predict trade grades, the implication is that the admission criteria is not designed to select the potentially best students for the shops. It is operating as one would expect, selecting the most academically qualified and those with certain behaviorial traits. There does not seem to be a high correlation between academic achievement and trade achievement.

d. The Attendance score plays no important role in affecting admissions of in predicting grades.

4.2.2 Follow-Up Summary

It is possible to conduct an effective follow-up study gathering data to measure the crtierion variables.

4.3 RECOMMENDATIONS

a. The admissions procedure was designed to try and accommodate the two goals of 1) selecting the most competent students and 2) providing equal access for all students, with particular concern to race, sex and students with special needs.

Both of these goals seem to have been achieved. But it is not clear whether or not the procedure has resulted in the best "trade" students. Unfortunately, there does not seem

to be any reliable instrument, or other identifiable variables which have been used to successfully predict "trade skill." The Regional Vocational Technical Schools have, on various occasions given this matter some thought. At one time, the Differential Aptitude Test was used, but did not seem to result in any significant change in student characteristics. An effort was made in the 1950's to develop some unique instruments but the project was abandoned. in

It is difficult to assess the significance of this, given the criterion of success generated in this study. Other variables than trade skill are important, and if trade skill can't be measured effectively (and it's not clear that it can't), selection should and is made on the basis of other important criteria. The selection of academic measurement for admission does not seem inappropriate under the circumstances. Three goals are sought, good basic skills, appropriate behavior characteristics and trade aptitude. If only two can be measured they should be. The schools provide some opportunity for students to be evaluated through the exploration program, so this perhaps accomodates the third goal. The admission criteria seems to be operating quite well in measuring what it is designed to measure.

It must be noted, however, that the success in achieving racial balance, and a slight increase in females is probably less due to the criteria used than to the way students are actually selected.

In order to provide access for minorities and special needs students, special provisions are made on the advise of advisory committees. What the admission criteria does is establish a priority listing and in essence, makes it possible to choose the academically best by race, sex, and special needs. If this is really the case, the Test and Grades may be all that are necessary, for they are the best measures of academic ability. The Interview seems to provide another kind of measure, one of behavior characteristics. This, one would

assume, would offer some modification to a prioritization by Test and Grades. But judging from the relatively high level of correlation between the Interview, Grades and Test, the modification is not great.

b. Further use of the admission criteria is quite possible, particularly in the identification of potential leavers. The Admission Test scores and Grades can predict leavers quite well. In general, the lower the scores, the higher the chances of dropping out. When coupled with previous vocational school grades, prediction even at 11th grade is relatively high. Admission Test scores and Grades are also useful in predicting success in school.

admission Test Scores and Grades are also useful in predicting the success in school. When coupled with previous vocational school grades, prediction is high.

c. It is not clear to what extent the admission criteria and vocational school achievement is related to success. The preliminary findings on the experimental follow-up would indicate that there will be a positive relationship. While no statistical test could be run with the experimental data, the findings on the follow-up suggest that the vocational school students were achieving well in terms of productivity, were moderately good and competent citizens and able to get on well with peers and superiors.

4.3.1 Further Research

a. Evaluate the relationship of Admissions Criteria to special needs students.

b. Conduct a more thorough study of the school leavers, particularly comparing them to the continuers.

c. Follow-up leavers and completers to see whether or not the admissions criteria does make a difference, and if so, which variable might be important, and how they might be used to be even more selective.

d. Conduct research on recruitment. While the admission criteria selects students with appropriate race distribution, the applicant pool may not be representative of minorities or in geographic distribution or in quality of the potential students.

Attachment 1

ABOUT YOU

NAME_____ DATE_____

1. Married? Yes_____ No_____ Number of children_____

2. Are you a registered voter? Yes_____ No_____

3. Are you active in any volunteer, civic, social, sports, church and/or technical organizations? Specify_____

4. Do you have any disabilities, health or other conditions that limit your employability? Yes_____ No_____

ABOUT THE REGIONAL VOCATIONAL TECHNICAL SCHOOL (RVTS)

5. Occupational area studied in RVTS_____

Was this the course you wished to take? Yes_____ No_____

6. At the time you were assigned your course did you <u>really plan</u> to work in that occupation after high school? Definitely___ Not Sure___ No___

7. Did you graduate from RVTS? Yes_____ No_____

If Yes:

What year?_____

Did you wish you had attended another school? Yes___ No___

If yes, why?_____

_____

If No:

Year you left_____

Reason for leaving_____

What did you do after leaving RVTS?

_____

Did you return to high school? Yes___ No___

If Yes: graduated___ still enrolled___ left___

8. How well did your high school education prepare you in:
(Answer even if you left the RVTS before graduating)

	Much	Some	Little	None
a. Understanding the labor market?				
b. Finding and getting a job?				
c. Getting along with others?				
d. Understanding management-labor relations?				
e. Understanding the political process?				
f. Mathematical skills?				
g. Communication skills?				
h. Family relations?				
i. Problems of discrimination?				
j. Understanding yourself?				
k. Understanding changing technology?				

9. How did you feel about the RVTS?

	Excellent	Good	Fair	Poor	Bad
quality of vocational instruction	____	____	____	____	____
quality of academic instruction	____	____	____	____	____
school building	____	____	____	____	____
teacher interest in students	____	____	____	____	____
counseling services	____	____	____	____	____
job placement services	____	____	____	____	____
availability of occupational areas taught	____	____	____	____	____
flexibility of program	____	____	____	____	____
handling of discipline problems	____	____	____	____	____

Comments_____

ABOUT YOU AFTER LEAVING THE RVTS

10. Are you presently; (check all that apply)

employed full-time	____	If yes, No. hours/week____	GO TO 11
employed part-time	____	If yes,	
a full-time student	____	If yes,	
a part-time student (not apprentice or on the job)	____	If yes, No. ____hrs/credits (circle one)	GO TO 12
a homemaker (not employed)	____	If yes, go to 13	
unemployed	____	If yes, go to 13	

11. IF EMPLOYED FULL-TIME OR PART-TIME

a. Present occupation (auto mechanic, machinist, sales clerk, etc.)

_____(apprentice? Yes____ No____
On the job training? Yes____ No____)

b. Actual job title_____

c. Name of immediate supervisor_____

d. Employer (company or organization)_____

e. Employers Address:

Street_____

City(Town)_____

State_____Zip_____

Size of Organization (No. of Employees)

Less than 10	____
10-50	____
50 - 100	____
Over 100	____
Self-Owned	____

f. How long have you been at present job? _____Months

g. Is this your first job after high school graduation or leaving school?_____

h. How long after high school graduation or leaving school before you got your first job?_____

i. About your salary (gross - not just take home pay)

Use Appropriate Category	(1) when first employed	(2) present
per hour	_____	_____
per week (less overtime)	_____	_____
per bi-weekly (less overtime)	_____	_____
per month (less overtime)	_____	_____
per year (less overtime)	_____	_____

j. Is your present job the kind of job you prepared for in the RVTS?

Very much____ Somewhat____ Little____ Not at all____

k. Did your present job require additional training? No___ Some___ Much___

l. Do you plan on obtaining further training? Yes_____ No_____

m. Did you have to change residence to take your present job? Yes___ No___

Would you move if a better job were offered to you? Yes____ No____

n. Do you like your present job? Very much___ It's ok___ Not particularly___

No___ If no, why not?_____

o. Have you experienced any discrimination in hiring, promotion, salaries or further training since being employed? Yes____ No____

Explain_____

IF YOU ARE A PART-TIME OR FULL-TIME STUDENT, GO TO 12.
OTHERWISE, GO TO 14.

12. IF A FULL-TIME OR PART-TIME STUDENT

a. School or training program in which enrolled_____

b. Major area of study_____

c. Goal sought: _____bachelors degree
_____associate degree
_____certification
_____other(explain)_____

d. Is your school or training program related to your trade program in the RVTS? Yes_____ No_____

e. If not presently employed, were you employed full-time (other than temporary or summer employment) before enrolling in school or training program? Yes_____ No_____

If yes, how long?_____Job Title?_____

IF EMPLOYED PART-TIME, COMPLETE 11.
OTHERWISE, GO TO 14.

13. IF UNEMPLOYED OR ENGAGED SOLELY AS A HOMEMAKER

a. Have you been employed since leaving school? Yes_____ No_____

If yes, Title of that job_____

If yes, was that job related to your training in the RVTS?

Very much____ Somewhat____ Not at all____

If yes to 13a, why did you leave? Laid off___ Quit___ Fired___ Other___

b. Are you seeking employment now? Yes_____ No_____

If yes, what barriers have prevented you from obtaining employment?

(Check all that apply)

_____1) have been promised a job and am waiting
_____2) no jobs available
_____3) lack of adequate training
_____4) discrimination, race___, sex___, other(specify)___
_____5) health reasons
_____6) Other_____

If no, why not?_____

GO TO 14.

14. Would you consider yourself as being: Very happy____ Happy____

Somewhat happy____ Unhappy____ in your present activities?

15. Thank you for completing this questionnaire. We would like to keep in touch with you. If you have had a change of address or name, would you indicate that change below.

NAME_____

Address_____

City(town)_____State_____Zip_____

Since this is the first time we've used this questionnaire, would you help us, please?

Are there any questions on this questionnaire which you didn't understand?

If so, which ones?_____

Are there any questions on this questionnaire which you think we should not ask? If so, which ones?_____

GRADUATE STUDENT FOLLOW-UP QUESTIONNAIRE Q2

Attachment 2

ABOUT YOU

NAME_____ DATE_____

1. Married? Yes_____ No_____ Number of Children_____

2. Are you a registered voter? Yes_____ No_____

3. Are you active in any volunteer, civic, social, sports, church and/or technical organizations? Specity_____

4. Do you have any disabilities, health or other conditions that limit your employability? Yes_____ No_____

ABOUT THE REGIONAL VOCATIONAL TECHNICAL SCHOOL (RVTS)

5. What Technical School did you attend?_____

6. Occupational area studied in RVTS_____

Was this the course you wished to take? Yes_____ No_____

7. At the time you were assigned your course, did you <u>really plan</u> to work in that occupation after high school? Definitely___ Not sure___ No___

8. Do you wish you had attended another school? Yes_____ No_____

If yes, why?_____

9. How knowledgeable were you about the occupation you studied?

	Before Admission			After Exploratory		
	Good	Fair	Poor	Good	Fair	Poor
a. Nature of work	___	___	___	___	___	___
b. Conditions of work	___	___	___	___	___	___
c. Rate of pay	___	___	___	___	___	___
d. Job opening	___	___	___	___	___	___
e. Long term future	___	___	___	___	___	___
f. Job security	___	___	___	___	___	___

10. How did you feel about the RVTS?

	Excellent	Good	Fair	Poor	Bad
a. quality of vocational instruction	___	___	___	___	___
b. quality of academic instruction	___	___	___	___	___
c. school building	___	___	___	___	___
d. teacher interest in students	___	___	___	___	___
e. counseling services	___	___	___	___	___
f. job placement services	___	___	___	___	___
g. availability of occupational areas taught	___	___	___	___	___
h. flexibility of program	___	___	___	___	___
i. handling of discipline problems	___	___	___	___	___

j. Comments_____

_____

ABOUT YOU NOW

11. Are you presently; (check all that apply)

employed full-time	____	If yes, No. of hours/week_____	GO TO 12
employed part-time	____	If yes,	
a full-time student	____	If yes,	
a part-time student (not apprentice or on the job)	____	If yes, No. ____hrs/credits (circle one)	GO TO 13
a homemaker (or not employed)	____		
unemployed	____	If yes, GO TO 14	
	____	If yes, GO TO 15	

12. IF EMPLOYED FULL-TIME OR PART-TIME

a. Present occupation (auto mechanic, machinist, sales clerk, etc.)

_____(apprentice?_____ on the job training___)

b. Actual job title_____

c. Name of person who hired you_____

d. Employer (company or organization)_____

e. Employers Address:

Street_____

City(Town)_____

State_____Zip_____

Size of Organization (No. of Employees)

Less than 10	_____
10-50	_____
50-100	_____
Over 100	_____
Self-owned	_____

f. How long have you been at present job?_____

g. Is this your first job after graduating from the RVTS?_____

h. How long after graduation before you got your first job?_____

i. About your salary

Use Appropriate Category

	(1) when first employed	(2) present
per hour	_____	_____
per week (less overtime)	_____	_____
per bi-weekly (less overtime)	_____	_____
per month (less overtime)	_____	_____
per year (less overtime)	_____	_____

j. Is your present job the kind of job you were preparing for in the RVTS?

Very much____ Somewhat____ Little____ Not at all____

k. Did you present job require additional training? Yes_____ No_____

If yes, was it:
1) extensive (whole set of new skills) _____
2) moderate (some additional skills) _____
3) minimal (just getting acquainted with the organizational processes, etc.) _____

l. Do you intend to get further training? Yes_____ No_____

m. How did you get your present job? (Check all that apply)

1. Friend	____	4. School	____
2. Family	____	5. On my own	____
3. Employment Service	____	6. Other (explain)	____

_____

n. Did your vocational preparation help you:

	Much	Some	Little	None
get your present job?	____	____	____	____
hold your present job?	____	____	____	____
advance on your present job?	____	____	____	____

o. How do you get along with:

	Well	Moderately Well	Not Well
your immediate superior	____	____	____
your fellow workers	____	____	____
others in the organization	____	____	____

p. How are the opportunities for promotion with your present employer?

Good____ Moderate____ Poor____ None____

q. Have you been promoted? Yes_____ No_____

r. How far do you travel each day to your job? _____Miles (one way)

How? Bus____ Own car____ Car pool____ Other(specify)_____

s. Did you have to change residence to take your present job? Yes___ No___

Would you move if a better job were offered to you? Yes_____ No_____

t. Do you like your present job? Very much___ It's ok___ Not particularly___

No___ If no, why not?_____

u. Have you experienced any discrimination in hiring, promotion, salaries

of further training since being employed? Yes_____ No_____

Explain_____

IF YOU ARE A PART-TIME OR FULL-TIME STUDENT, GO TO 13
OTHERWISE, GO TO 16

13. IF A FULL-TIME OR PART-TIME STUDENT

a. School or training program in which enrolled_____

b. Major area of study_____

c. Goal sought: _____bachelors degree
_____associate degree
_____certification
_____other (explain)_____

d. If not presently employed, were you employed full-time (other than temporary or summer employment) before enrolling in school or training program? Yes_____ No_____

If yes, how long?_____Job Title_____

OTHERWISE GO TO 16

14. IF HOMEMAKER:

a. Are you also employed for income at a part-time job? Yes_____ No_____

If yes, Complete 12 above).

b. If you are not employed for income, do you plan to become employed in the near future? Yes_____ No_____

CONTINUE WITH 15.

15. IF UNEMPLOYED:

a. Have you been employed since leaving school? Yes_____ No_____

If yes, Title of that job_____

If yes, was that job related to your training in the RVTS?

Very much____ Somewhat____ Not at all____

If yes to 15a, why did you leave? Laid off___ Quit___ Fired___ Other___

b. Are you seeking employment now? Yes_____ No_____

If yes, what barriers have prevented you from obtaining employment? (Check all that apply)

_____1) have been promised a job and am waiting
_____2) no jobs available
_____3) lack of adequate training
_____4) discrimination, race____, sex____, other(specify)_____
_____5) health reasons
_____6) other(explain)_____

If no, why not?_____

GO TO 16.

16. Thank you for completing this questionnaire.

We would like to keep in touch with you. If you have had a change of address or name, would you indicate that change below.

Name_____

Address_____

City(Town)_____

State_____Zip_____

Since this is the first time we've used this questionnaire, would you help us please?

Are there any questions on this questionnaire which you didn't understand? If so, which ones?_____

Are there any questions on this questionnaire which you think we should not ask? If so, which ones?_____

Are there other things you'd like to tell us? If so, what are they?

_____

VOCATIONAL AND TECHNICAL SCHOOL
STUDENT FOLLOW-UP STUDY

1. Grade I was in when I left the Regional Vocational Technical School.
   9th____ 10th____ 11th____ 12th____
2. Reason for leaving_____
   _____
3. I ____returned to high school _____did not return to high school.
   If yes, I:
   _____graduated _____dropped out ____am still attending
4. I am ____employed full-time ____attending school full-time
   ____employed part-time ____attending school part-time
   ____homemaker (or not employed)
5. If employed, my job is _____
   (Title or type of activity)
6. How long have you been at this job? _____Months
   a. Name of immediate supervisor_____
   b. Name of company or organization _____
      Address _____
      City(Town) _____State_____Zip_____
7. My approximate gross earnings (less overtime) are $ _____per week.
8. What could the Regional Vocational School have done to have you stay until graduation?_____
   _____

Name_____
Address _____
City(Town) _____ State _____Zip _____

Attachment 4

The University of Connecticut

STORRS, CONNECTICUT 06268
SCHOOL OF EDUCATION
Department of Higher, Technical and Adult Education
3UG

July 23, 1980

Dear

In checking our returns from graduates of vocational training programs at A.I. Prince Vocational School, we find that we do not have information about you.

If you still have the questionnaire we sent you in July, we hope you will complete it and return it to us. If you have misplaced or lost the questionnaire, please do take two or three minutes to check the answers to the few brief questions at the bottom of this page and send it to us soon.

A self-addressed stamped envelope is enclosed for your prompt reply.

We hope to have a complete response from the members of this graduating class.

Sincerely,

Richard W. Whinfield,
Professor

1. I am ____employed full-time ____attending school full-time ____homemaker
   ____employed part-time ____attending school part-time
2. If employed, my job is_____
   (Title or Type of Activity)
   2a. I have had this job since_____
   Month Year
   With: Name of Company or Organization_____
   Address:_____
   State_____Zip_____
3. My work is related ____directly, ____somewhat, ____little, ____not at all to my vocational training in school.
4. My approximate gross earnings (less overtime) are $_____per week.

NAME_____

ADDRESS_____

CITY(TOWN)_____STATE_____ZIP_____

Attachment 5

T TEST RACE AND SEX BY DEPENDENT & INDEPENDENT VARIABLE

1977

	CBT		ATT		INTER		GRADES		TOTAL		GPA		TPA	
	T	H.S.	T	H.S.	T	H.S.	T	H.S.	T	H.S.	T	H.S.	T	H.S.
B & H	0.473	0.637	.776	0.439	-2.009	0.046	-1.357	0.177	-1.184	0.239	-.4210	0.674	-.2099	0.835
B & W	-9.208	.0001	0.393	0.695	2.092	0.037	0.838	.4022	-5.853	.0001	-1.933	0.054	-.007	0.994
H & W	-7.907	.0001	-0.615	0.539	0.264	0.792	2.718	0.007	-3.874	.0001	-1.157	0.248	0.283	0.778
M & F	2.307	0.021	1.638	0.102	1.387	0.166	-5.662	.0001	-.552	0.581	-2.358	0.019	-1.821	0.069
						1978								
B & H	0.032	0.975	0.308	0.759	-.781	0.436	-.560	0.576	-1.068	0.287	-1.897	0.060	-.489	0.626
B & W	-7.601	.0001	-1.241	0.215	-1.377	.1690	1.365	0.173	-3.513	.0005	-2.572	0.010	-3.006	0.003
H & W	-7.216	0.001	-1.660	0.097	-.360	0.719	2.142	0.033	-1.876	0.061	-.150	0.881	-2.112	0.035
M & F	1.602	0.110	3.188	0.002	0.986	0.325	-2.878	0.004	-.175	0.861	-.762	0.446	-1.737	0.083

1979

T TEST OF RACE AND SEX BY DEPENDENT & INDEPENDENT VARIABLE

	CTB		ATT		INTER		GRADE		TOTAL		GPA		TPA	
	T	H.S.	T	H.S.	T	H.S.	T	H.S.	T	H.S.	T	H.S.	T	H.S.
B & H	-1.891	0.06	2.083	0.039	-3.372	0.0009	-1.207	0.226	2.620	0.010	-0.225	0.823	-2.569	0.011
B & W	-8.256	0.0001	-0.992	0.322	-1.698	0.090	-0.348	0.728	2.728	0.006	-1.127	0.260	-5.321	0.0001
H & W	-5.604	0.0001	-3.723	0.0002	2.647	0.008	1.208	0.228	-1.380	0.168	-0.764	0.445	-1.606	0.109
M & F	2.523	0.012	2.947	0.003	-1.938	0.053	-3.368	0.0008	-1.451	0.147	-1.762	0.079	0.013	0.990